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ABSTRACT

Brief descriptions are provided of 39 activities funded through the Virginia Community College Institute for Instructional Excellence, including efforts to adapt and/or modify a teaching practice developed by a colleague or documented in the literature (funded by Adapter Grants), to develop and implement innovative teaching practices (funded by Developer Grants), and to plan and stage workshops focusing on instructional issues relevant to community colleges (funded by Regional Instructional Workshop Grants). Abstracts are presented for activities including innovative approaches to instruction in drafting and design; systematic thinking; study skills; observational skills; English as a second language; writing; gerontological nursing; accounting; heavy equipment operation; statistics; creative thinking; general biology; geology; note taking; natural science; computer programming; study strategies; advertising design; developmental writing; theater arts; human anatomy; and music. In addition, descriptions are provided of the regional workshops, focusing on the brain, creativity, and computers; online searching; mathematics; computer assisted instruction in the health sciences; industrial automation education; cross-disciplinary literacy; and international/intercultural programs. (EJV)

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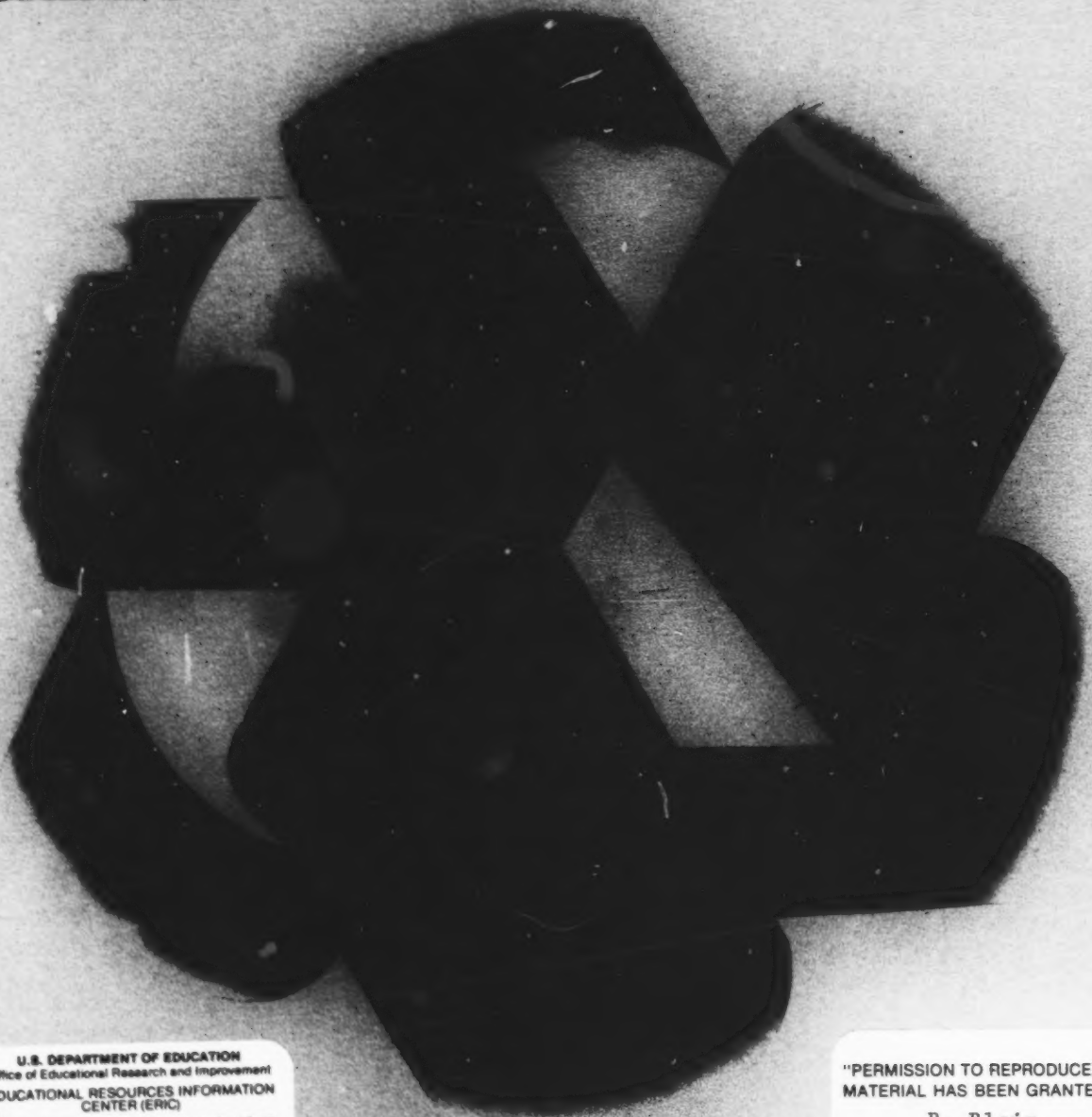
THE VIRGINIA COMMUNITY COLLEGE
INSTITUTE FOR INSTRUCTIONAL EXCELLENCE
1985-86

CATALOG OF EXEMPLARY PROJECTS



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INTRODUCTION

The Virginia Community College Institute for Instructional Excellence is proud to make available its second CATALOG OF EXEMPLARY PROJECTS, which contains abstracts of thirty-two individual grant-funded activities and seven Regional Instructional Workshops on topics or in disciplines proposed by clusters of faculty members representing two or more Virginia community colleges.

The IIE was funded for the period 1984-1986 by a grant from the State Council of Higher Education for Virgina's Funds for Excellence Program. In the proposal for funding, written by a group representing both the Virginia Community College System and New River Community College, New River's President H. Randall Edwards wrote that the IIE sought to build on "the dedication and creativity" of the faculty and staff in VCCS institutions, adding that the Institute had the potential to extend excellence "faculty by faculty, classroom by classroom" throughout the VCCS. The Institute's three grant categories encouraged "action for excellence" by providing a funding source of first resort for its applicants and a clearing-house for dissemination of the resulting information concerning exemplary instructional methods. Grant categories provided financial assistance for "adaptation and/or modification of a teaching practice developed by a colleague or documented in the literature" (Adapter Grant), for "developing and implementing innovative teaching practices" (Developer Grant), and for planning and staging workshops "focusing on instructional problems, trends, or issues relevant to community colleges and offering the chance for faculty and staff to demonstrate and discuss exemplary methods with their colleagues" (Regional Instructional Workshop Grant).

In its initial year, 1984-85, the IIE was directed by Jeffrey Bartkovich of New River Community College. For the 1985-86 academic year, operations were moved to the Loudoun Campus of Northern Virginia Community College, where it has been my privilege to direct the IIE for its second, and final, year. Throughout the two-year period, Lois Wells, VCCS Curriculum Coordinator, served as Co-Director. Six individuals reviewed proposals during part or all of the two years: Charles Bates, Jr., Professor of Drafting and Design, Paul D. Camp Community College; Evelyn Edson, Professor of History, Piedmont Virginia Community College; Sharon H. Lawhorne, Professor of Biology, Tidewater Community College; Deborah M. DiCroce, Provost, Frederick Campus, Tidewater Community College; Richard E. Brewer, Academic Dean, J. Sargeant Reynolds Community College-West Campus; and Michael S. Hensley, Dean of Academic and Student Affairs, John Tyler Community College. For 1985-86, Vernita Hall served as administrative assistant for IIE operations.

During its two-year life, the IIE has underwritten nine Regional Instructional Workshops and has made awards to approximately one-hundred VCCS faculty or staff members for their innovative individual projects. The number of projects is impressive and testifies to the propensity for innovation within the Virginia Community College System, which this year celebrates its twentieth anniversary. The quality of the projects is equally impressive, as can be seen in the pages of both the first and this, the second, CATALOG OF EXEMPLARY PROJECTS.

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DEVELOPER AND ADAPTER GRANTS

SHORT-TERM TRAINING STUDENT/FACULTY WORKSHOP IN COLLABORATION WITH OAK RIDGE ASSOCIATED UNIVERSITIES

Harold S. Adams and Michael L. Lipford
Dabney S. Lancaster Community College

ABSTRACT

Short-term training workshops developed in collaboration with Oak Ridge Associated Universities (ORAU) are designed to provide an opportunity for students to participate in activities not possible at home institutions. During the workshop, students and faculty conduct basic nuclear-related experiments under the guidance of ORAU's multidisciplinary staff while using millions of dollars worth of equipment – equipment unavailable except at a few large institutions. The collaboration between our small rural two-year institution and a specialized institution with extensive equipment and a superior staff has enabled us to go beyond our physical and fiscal limitations in providing the highest quality instruction to our best students.

Programs and activities already scheduled and examples of workshops that have been previously developed for other institutions may be requested from the Professional Training Program Division of Oak Ridge Associated Universities at Oak Ridge, Tennessee. If as least eight students/faculty can participate, ORAU will work with a local coordinator to develop a workshop which includes activities tailored to the interests of the home institution. A wide variety of lab, lecture, and tour activities are available and conducted by authorities in their field. This program is tuition-free, although participants must provide for their own housing, meals, and transportation.

Our most recent workshop, designed in collaboration with Dr. Paul W. Frame, Course Coordinator for ORAU, included: (1) a tour of the Environmental Sciences Division at Oak Ridge National Laboratory (ORNL); (2) introduction to radioactivity and laboratory safety; (3) laboratory activities emphasizing careful technique in working with radioactive substances; (4) uses of radiotracers in biology and other fields; (5) measurement of primary productivity in plants by using carbon-14; (6) physiological effects of radiation on living things; (7) natural radioactivity in the environment (e.g., soil, water, air food, consumer products); (8) calculation of blood volume in white rats using Iodine-131; (9) dissection of normal rats and those that had been exposed to intense radiation a few weeks earlier to observe effects of radiation; (10) gamma ray detection and spectroscopy; (11) carbon dioxide in the atmosphere and implication of altered crop and natural community productivity and warming trends in cimate; (12) tour of the American Museum of Science and Energy in Oak Ridge; (13) tour of the graphite reactor at ORNL, the first of its kind and the site at which the first atomic bomb was developed; and (14) observation of the Swimming Pool High Flux Research Reactor at ORNL.

Our participation in the course with students strengthened our relationship with them. We were learners in these activities with them, experiencing the same frustrations and elation as they. Students have said they appreciate our honesty and openness in expressing our own concerns and anxieties in approaching new tasks in unfamiliar settings. Also, we have been able to incorporate much of what we learned into other courses.

In conclusion, our trip to Oak Ridge offers the opportunity to mesh many disciplines of science in a setting of "cutting edge" research and has been a good way to culminate a year of biological study. Such an opportunity is available to any college, and we found ORAU to be most helpful and cooperative in designing activities suited to our needs. Finally, although we use the workshop only in Honors Biology, such an activity can be designed for use in nearly any other college science course (e.g., biology, physics, chemistry, anatomy and physiology).

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DRAFTING AND DESIGN: FOCUS SOUTHAMPTON COUNTY CORRECTIONAL CENTER

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ABSTRACT

Technical drafting and design courses can be offered at correctional institutions within the guidelines of the rules and regulations for inmates' not having pointed tools and instruments in their possession. Modern School Supplies, Incorporated located in Hartford, Connecticut, put together a drafting kit which included all the necessary tools and instruments needed to complete technical and architectural drawings. Contained in each student's kit are: two acrylic transparent 30°-60° triangles, a 45° triangle .080" thick with recessed edges for inking, a curvex flexible measuring curve with 1/4" graduation scale, semi-circular protractor divided into 1/2" increments, an architectural and engineering scale made of bonded white plastic with color coded grooves for scale identification. Also included in the student's kit is a free hand lettering guide, 3/4" x 10 yd. roll of drafting tape, an erasing shield, rubber red soft pencil eraser, a hand held pencil sharpener, two drafting wooden pencils, sand paper pointer pad, a 6" irregular plastic French curve. The drawing board measures 18" x 24" x 5/8" made of ply white basswood complete with metal edges. The T-square is made out of seasoned hardwood with a securely fixed head and smoothly finished surface. All of these tools and instruments are placed in a corrugated carrying case.

This setup would allow the inmates to carry their board and supplies to and from class and at the same time have tools and instruments that are most frequently used by entry level draftspersons in industry today.

Students are taught how to draw, how to create good line quality, how to lay out and dimension industrial drawings. Drawing assignments are made and collected. After lectures and classroom demonstrations, the inmates then have the opportunity to use their personal tools and instruments for actual hands-on drawing activities.

The effectiveness was measured by the quality seen in the drawings that the inmates turned in. After the first two or three drawing assignments, the inmates not only completed drawings assigned but in most cases completed more than those assigned. This showed the enthusiasm for drafting that has been generated in the classroom setting.

The concept of teaching drafting to inmates with a self-designed laboratory has become a very comfortable system to the students at the correctional center. As a result, they appear to be much more involved with their learning and seek personal understanding of the drafting concepts we studied.

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ADVANCING THE ANSWERS: PROMOTING SYSTEMATIC THINKING IN MATH, SCIENCE, AND TECHNOLOGY COURSES

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ABSTRACT

Scientists, engineers, and their techical co-workers are useful to employers and to society at large only if they think systematically and creatively when faced with new problems. As a teacher of Electrical Engineering Technology, I have observed a significant lack of systematic thinking by many students. Problems are approached with little or no forethought and solutions, therefore, appear chaotic and incomplete.

Despite my oral and written exhortations that solutions be neat and complete on tests, only the best students did work adequate to allow my giving partial credit or even to convince me they had not cheated. Usually I was reluctant to penalize a correct but poorly documented answer, even if such penalty would ultimately be beneficial to the student.

To address these concerns, on some tests I now give students the answers on those problems which

require several steps to solve. The answer for each problem is clearly shown and the superscription of the test reads as follows: "The answers are provided and, therefore, are worthless for the grading of this test. You will be graded not only on theoretical correctness, but also on how clearly, systematically, and neatly you demonstrate the solution process." In order to lessen the shock, I simply announce prior to the first test in this format that the emphasis will be on clear solutions.

With only one quarter to test this method, I do not have results that represent a statistically valid sample. However, I do offer the following tentative observations:

Grading answer-provided tests was no more difficult than conventional tests, especially if one attempted to give partial credit. The solutions were generally better documented. Some students even began numbering steps in the solution process.

The expected improvement in neatness was a bit disappointing. However, the rush to finish the test in limited time could account for this lack of neatness.

Providing the answers did little to help the really weak student score higher on a given test. In fact, for such students this format served only to make weak areas more glaringly apparent. Perhaps, however, this disclosure is ultimately beneficial to student and teacher alike. Improvements in neatness and grade, when noted, applied mainly to strong and average students.

Student solutions to answer-provided tests frequently disclosed some new, creative, and legitimate approaches to the problems assigned.

Maximum benefit from this method of testing will be derived only when it is used on a continuing, even if occasional, basis with the same students. Systematic thinking is learned neither overnight nor as the result of one test. Statistical validation requires a larger sample as well as a control group which is administered tests with identical problems but in the conventional format.

Student response to answer-provided tests was generally positive. While some complained that the neatness requirement was unfair, others indicated a sense of relief that with the answer given, one math error would not spell total disaster. While virtually all students agreed that such tests required more time and effort, most recognized that with the additional documentation of solutions, the instructor could more readily give partial credit.

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STUDY SKILLS MODULE FOR TEACHING TEXTBOOK READING AIDS

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ABSTRACT

The Study Skills Module For Teaching Textbook Reader Aids To Community College Students was developed to be used primarily with developmental reading students at the community college level. The lessons and activities in the module however, can be used in most content area classes with only a few modifications.

In following the objectives of the module, the first step that was undertaken was the administering of the pretest on using textbook reader aids in order to determine which textbook reader aids the students needed to be taught how to use.

The results of the students' graded and tabulated pretests revealed that most students in the class were having a problem with using the indexes and the glossary in their reading textbook.

At this point, students were given a list of textbook reader aids that are found in most textbooks. Students were asked to see how many of these textbook reader aids they could find in their reading textbook by the next class meeting. The students shared their findings with their classmates in the form of a class group discussion. Once it was felt the students had an understanding of the location and use of textbook reader aids from the list, special emphasis was placed on the textbook reader aids that gave students the most problems. Students were taught how to locate and use the unfamiliar textbook reader aids. This teaching took the form of classroom discussions, homework activities and hands-on experiences using actual content textbooks in addition to the class' reading textbook. Students were given ample opportunities to ask questions while locating textbook reader aids in unfamiliar textbooks as well as their reading textbook.

Throughout this teaching/learning process, the teacher circulated among the students to provide

individual assistance when needed.

When it was felt that the students had a usable understanding of textbook reader aids, the questions on the pretest were rearranged and readministered to the students as a post-test to determine the effectiveness of the teaching/learning activities of the modules. The post-test results were considered effective if the students had at least 21 of the 27 post-test questions answered correctly.

Most of the students had 21 or more of the post-test questions answered correctly. Thus, it was felt that the teaching/learning activities of the module were effective and the students now had an understanding of textbook reader aids which could easily be transferred from their reading textbook to any content textbook.

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USING SPECIAL MUSEUM EXHIBITIONS AS A RESOURCE FOR ADULT EDUCATION COURSES

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ABSTRACT

Resources made temporarily available by a unique museum exhibition were employed as the springboard for a special history course, "The History of the English Country House" (HIST 199), designed primarily as an adult continuing education class.

"The Treasure Houses of Britain" exhibition which was on display from November 1985 through April 1986 at the National Gallery of Art in Washington, D.C., was the occasion for developing a course which included a tour of the exhibit and preparatory classroom sessions which dealt with the architectural development of the English country house and the role played by country houses in England's social and cultural life. This background historical information served as an aid to a fuller understanding of the exhibition. The course offered one quarter-hour of college credit.

Three two-hour classes were conducted. Each began with a segment of the three-part film series prepared by the National Gallery and British television to accompany the "Treasure Houses" exhibit. The remainder of each class period was devoted to an illustrated lecture tracing the development of the country house from the Norman Conquest to the present, utilizing 35 millimeter slides from the instructor's collection and transparencies of typical floor plans. Class discussion centered on the manner in which the architectural design and spatial arrangements of the houses reflected the eras in which they were constructed.

The final meeting of the class was devoted to an all-day trip to Washington and a visit to the exhibition. Transportation was provided for the participants in college vehicles and was included in the basic cost for the course.

Reaction to this course was overwhelmingly favorable as evidenced by the fact that over forty persons enrolled in the two sections offered (one in Lexington, the other on the main DSLCC campus). Those enrolled ranged in age from 25 to 84; 75% of those enrolled had never taken a course at DSLCC or at any other community college. Class attendance at the three two-hour sessions was nearly 100%.

Many students expressed their belief that the course material had heightened their appreciation of the National Gallery exhibit and inquiries have been made as to when a similar course might be offered in the future.

By means of such courses a service is offered to the community, educational information is imparted, and new students are exposed (in this instance, mostly for the first time) to the wide range of offerings available through the community college system.

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TEACHING OBSERVATIONAL SKILLS

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ABSTRACT

Refinement of observation skills is an important competency for students enrolled in NURS 116 – Fundamentals of Psychiatric Nursing. Learning to objectively describe appearance, behavior and conversation of patients is a skill which takes time and practice. Students are required to demonstrate these skills with patients in a state mental hospital. Initially, much anxiety is experienced by students in this setting, which often interferes with learning to make accurate observations.

Control of the environment by decreasing the stress levels is a well-known principle of teaching. Since acquisition of this skill is an important objective in this course, learning these skills can be facilitated by gradually changing the type of environment where practice of these skills occurs. Teaching strategies were developed for use in the classroom and community. Thus, students gained initial practice with observational skills in less stressful settings, which increased their confidence, so that application of these skills in the hospital setting was easier.

Written guidelines with descriptive adjectives for the categories of appearance, behavior and conversation were given to each student prior to class. Color slides of people of various ages, appearances, demonstrating body gestures and assorted facial expressions were shown in class and students were asked to describe in very specific objectives terms what they saw. Tapes of various voices (male, female, young and old) were made by recording segments from popular records. Students listened to each example and then described what they heard; i.e. tone of voice, rate and content of speech.

Students were then given a written guide for observations of behaviors, such as aggression and withdrawal. The setting was in the community and their choice, e.g. the laundromat, a softball game, or a shopping mall, etc. Students completed this assignment individually and then observations were discussed in small groups.

Finally, students included their descriptions of appearance, behavior and conversation each week when they wrote up their one-to-one interactions with an assigned patient in a psychiatric hospital; thus moving from a less stressful to a more stressful setting to practice these important skills.

Students who have had the opportunity to practice observational skills in less stressful environments have demonstrated increased competency when utilizing these skills in a psychiatric setting. Fewer questions were asked regarding how to describe their observations on written assignments. In addition, less time was spent by the teacher making notations on written descriptions of one-to-one interactions, as reminders to be more descriptive. The most rewarding evidence of the effectiveness of this teaching strategy was reflected by students reporting they felt more confident with these skills as compared to students who had not had the experience of the gradually changing environment.

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GUIDED AND SEQUENTIAL PARAGRAPH-WRITING IN AN ADVANCED-LEVEL ESL COURSE

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ABSTRACT

Objectives: I developed a guided, sequential, 8-part series of both in-class and out-of-class writing assignments to give non-native writers regular writing practice using standard English structures. The challenge was to provide enough of the right kind of writing practice in addition to the routine course material – prepositions, idioms, articles, direct and indirect discourse, etc. – in a fairly limited amount of time. Many non-native speakers of English are, understandably, eager to proceed with their chosen studies, so my purpose in designing the writing tasks was to provide opportunities for writing which would help to steer them away from the usual second-language problem of relying on word-for-word or idiom-for-idiom translations which mistakenly assume that one

language differs from another in vocabulary only.

Methodology: I am candid with the students about the nature of the 8-part writing assignment series: I admit to them that it will be guided, that each assignment builds the skills acquired in the previous one, that it will be very prescriptive, and will seem quite limited. The advantage, I tell them, is that the whole 10-week experience will provide them with a good foundation in the principles of writing which will allow them to compete on something like an equivalent basis with native speakers of English in their next classes.

The first assignment involves basic sentence patterns; thereafter, each assignment builds upon the previous one and requires the students to apply what they've just learned in class regarding relative clauses, coordination, subordination, etc. (Sample assignments and student papers appear in the documentation portion.) For all of the writing assignments, in addition to giving them clear and specific instruction, I also do each assignment myself and distribute my example to them. This not only gives them a clear model but also reinforces through example my suggestion that they choose unsophisticated, non-abstract, fairly simple topics for now. Therefore, when I write about my unruly younger sister, my dog, or my routine visit to the supermarket, the students get the point.

Evaluation: Since the implementation of this 8-part, sequential writing assignment process, I have heard again and again from both students and other faculty how well the system works. The English 11 students feel that they have acquired some solid understanding and skill in English use. They know basic terminology, the patterns, structures, and they understand how a paragraph should look.

The faculty, too, have responded favorably. They have commented to me that the ESL students now seem much better prepared, much better at the transition from an ESL course and program to classes where they are often the only non-native speakers in a large class of native speakers of English. .

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WRITING-SAMPLE AND EXIT-WRITING EVALUATION: ANOTHER METHOD OF ASSESSING LEVEL AND NEEDS OF NEW OR CONTINUING ENGLISH AS A SECOND LANGUAGE STUDENTS

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ABSTRACT

I developed 1) placement-test, challenge-test, and exit-level paragraph assignments for English as a Second Language students, 2) criteria for evaluating them to be made available to both students and evaluators, and 3) a set of guidelines for faculty about assessing the kinds and seriousness of errors in ESL writing. These were all developed for our English as a Second Language Program.

We use the paragraph-writing assignment at the start of each English 11 course (the ESL writing course) as an initial evaluation of each student's level, at the end of each English 11 course as an exist test, at various times throughout the year as a challenge test, and at various times as a double-check of a student's ability to succeed in other courses.

The writing topic sheet is prefaced with guidelines about the criteria for paragraph evaluation so that the students know beforehand what is expected of them. The basic criteria also remind other faculty of the minimum acceptable standards for a paragraph to aid in evaluation.

As an elaboration of the criteria, I prepared a handout concerning the kinds of errors in ESL writing. The purpose was to describe the kinds and categories of common errors and to suggest whether such errors should be considered as serious or minor.

Although we use a standardized test for ESL placement, the test (as do most such standardized tests) focuses on recognition skills and doesn't provide an assessment of the student's production skills and often—though infrequently—doesn't guide us properly in placing the student. Therefore, we use the paragraph assignment and evaluation at the start of the quarter to see what specific writing problems each student has and, of course, to determine whether anyone has been misplaced.

At the end of the course, in addition to various tests on grammatical elements, we use a final in-class paragraph-writing assignment to determine whether the student's production skills are sufficient to allow him/her to compete academically with native speakers in the next classes.

On occasions when students feel that the standardized scores have misrepresented their abilities, we re-test these students through the paragraph-writing assignment. The final occasion for using the paragraph-writing assessment occurs when a student finishes the program but doesn't enroll immediately in another English course. When the student does enroll, his/her writing sometimes reflects the lack of practice. We re-test the student and recommend that the student either re-enroll in an ESL course for a review or arrange for some tutoring in our Writing Center.

The evaluation of the paragraphs at the start of the quarter is helpful to the ESL faculty in knowing specific lessons to add, modify, or even delete depending upon the results of the paragraphs. Also, the evaluation provides immediate feedback to students regarding particular areas of weakness.

At the end of the quarter, the paragraph measures the student's ability to compete fairly successfully with native speakers in the next course. The students who can meet the minimum criteria fare well in later courses and have expressed confidence in enrolling in higher-level composition courses.

During the quarters, the number of challenge-paragraph evaluations varies depending upon the number of new students tested and the degree of discontent in any particular quarter—it is usually not more than twelve.

In all cases, having the paragraph criteria has provided a consistent and reliable means of evaluating the paragraphs and provides evidence to the students to justify their original placement or the need to enroll in or to repeat the course.

The expanded information regarding kinds of errors has provided information to my colleagues so that they are better able to recognize both serious and minor errors in writing. This is especially important since some of them tended to make allowances for very serious writing weaknesses or, at the other extreme, to despair at some minor ones. Showing the former group how, for example, unrecognizable English structures will continually cripple a student's writing unless he/she enrolls in an ESL course and showing the latter group how just a few preposition misuses will make a paragraph appear to be hopeless are both extremely worthwhile outcomes of this procedure.

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A GERONTOLOGICAL NURSING PRACTICUM

Eunice B. Cooper and Ruth G. Thomas
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ABSTRACT

A special nursing practicum in gerontological patient care management was jointly designed by NVCC nursing faculty members and the Director of Nurses of the associated nursing home clinical facility. This practicum is included in NURS 224: Nursing in Major Health Problems, the final course in the Nursing sequence.

Students have the option of self-selection into this management-oriented clinical experience. They are enabled to incorporate all previous learning as they plan the complex care required by the geriatric population. A primary feature of this practicum is the increasing independence required of the student as he/she assumes the roles of a staff nurse working without direct supervision of the instructor. Students practice primary nursing as they plan and supervise the care of eight patients throughout a full nursing shift.

Two or three students are assigned to each of four nursing units. They develop the skills of group process as they form teams composed of the charge nurse, themselves, and the nursing assistants who regularly provide personal care to their groups of patients. Students further their knowledge of group process by organizing an interdisciplinary patient care conference regarding the care of a selected patient. To strengthen group knowledge of issues related to gerontology, each student leads a post-conference discussion of a topical and timely subject.

Students are expected to carry out all of the functions of a staff nurse with minimal and decreasing instructor supervision. They find considerable opportunity for skill development.

This practicum was developed jointly through open communication involving the Director of Nurses, the Program Head of Nursing, and the involved faculty member. It was explained in advance of implementation to both professional and paraprofessional staff at the nursing home clinical facility, and evaluated by the same groups. Staff input has resulted in significant additions to the practicum.

This practicum has received enthusiastic response from students during its four year history, and several graduates have reported that it has played a significant role in preparing them for their entry-level staff nurse positions. More students request the practicum than can be accommodated each time it is offered. Students see this experience as quite different from anything else in the curriculum. They have been able to identify and document these differences. The practicum provides a cushion of realistic experience which reduces the reality shock commonly found among recent nursing graduates.

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ACCOUNTING FOR HOSPITAL PERSONNEL

Larry Davis
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ABSTRACT

During the spring quarter of 1983, I developed a course in managerial accounting to address the needs of managers in a local hospital. The course, Accounting for Managers, was tailored for hospital managers and was designed to enable the staff to function more effectively in controlling costs and preparing budgets.

Objectives for the three-credit course were developed in conjunction with the administrator and twenty pre-selected employees of the hospital. The analysis of hospital employee's needs and expectations for a course in managerial accounting, resulted in the following objectives.

1. Understand how financial information is generated and how to use it to make managerial decisions.
2. Learn the correct meaning and usage of financial terminology.
3. Plan, implement, and control operating and expense budgets used for various operations.
4. Learn to select for analysis and interpret data that appear on basis financial statements.

The objectives of the course were accomplished by integrating material from numerous management, financial accounting, managerial accounting, cost accounting, and hospital administration texts with actual financial statements and reports of the hospital and realistic problems encountered in hospital administration.

Feedback from students in the course indicated that the course was extremely beneficial and helped facilitate greater involvement on their part in the operation of the hospital and fostered a better understanding of the relative importance of sound financial management in hospital administration.

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HEAVY EQUIPMENT RODEO AND COMPETENCY EVALUATION

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ABSTRACT

In the process of developing a creative and competitive final examination, I have incorporated a Rodeo format. It is a showcase of student mastery of HVEQ competencies. The students are encouraged to attempt all tests but he or she is allowed to participate at whatever level desired.

The Rodeo also becomes a yearly confidence course for graduating students. In going into the highly competitive search for employment, this one last proof of ability is a real asset. Potential employers find the skills demonstration a good indicator of qualifications for a productive future with their firm. Family and friends enjoy the fun of seeing the culmination of a year's training. Potential students catch the excitement of one day being in the driver's seat. Finally, a fun day for press and community is a positive public relations effort for the college.

The six terminal competencies display a mastery of the heavy equipment operations. The specific skills involved in the operation are identified by task analysis. The pivotal ones are developed into games that are highly visible and easily evaluated.

The HVEQ Rodeo is set up as a final examination for students completing the year-long program. The examination is a comprehensive test of terminal skills. The test is meant to be competitive but without the common pressure of a final examination.

Students are allowed eight to ten hours to practice each competency. This practice time accomplishes two objectives. First, the student has an opportunity to hone skills that will be demonstrated before peers, public, employers, and instructors. Secondly, the trial and practice time allows opportunity to discover and avoid flaws in competency set-up. Potential machinery malfunctions, site development, time parameters, and test components are all monitored to assure their reliability and safety. On Rodeo day all is in readiness for the show to go on.

Invitations are sent out to specific target groups. Newspaper, radio, posters, and on campus communications are brought into play to ensure the public is aware of the activity. Finally, a rain date is established in case of unplanned for eventualities. Although, even with a light rain, the show has always gone on.

An awards dinner is sponsored in the afternoon. Individual and team prizes are given as further incentive to achieve the best level of participation. Certificates of recognition for achievement during the year are awarded. Thus, the program ends on a positive, upbeat note which carries over into the next class just one month later.

The Rodeo does provide an evaluative instrument that meets all requirements of its stated objectives. Participants and observers display enthusiasm for the day's activities.

The competencies are a demonstration of terminal skills. Each of the six is the culmination of combined and progressive tasks involved in the mastery of specific equipment operation. Evaluation documents are simply written competency sheets which are available to participants and are kept, when completed, in student files.

This one day is recalled with pride by past participants at class reunions. It is often mentioned by incoming students as positive inducement for their enrollment. It has given a good source of publicity for college vocational programming.

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HIGH-TECH FIELD TRAINING: HEAVY EQUIPMENT OPERATION AND PREVENTIVE MAINTENANCE

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ABSTRACT

The use of headsets in the DSLCC Heavy Equipment Operations has increased the effectiveness of lab instruction, lessened noise levels and distractions for students, and increased the amount of time students are able to spend using the equipment.

The objective of giving instruction during the lab exercise of skills practice is accomplished in the HVEQ program. High noise levels, wide proximity of learners, no immediate safe access to student during practice, other environmental conditions (i.e., dust, wind, sun glare), coordination requirements of multiple machines, and the need to make manipulative changes in task approach during operation are all examples of the frustrations

encountered during Heavy Equipment Operational lab sessions. Communication headsets for each learner with a command headset for the instructor overcomes these and other difficulties.

Students need immediate evaluation and the resulting comments to develop desirable work habits. After the lecture and a demonstration of a particular task, the student must mount the machine and perform. The added security of an instructor directing movements at the first attempt lessens tensions. The increased safety of an instructor noting potential hazards helps to avoid costly accidents. The lessened noise due to headphones assures hearing damage will be less likely.

The instructor may speak to one student attempting a maneuver or he may explain step by step to many students as he demonstrates. Thus, instructional time is enhanced and student practice on a machine is increased.

The objectives are reached by the purchase of communication headsets that are nonrestrictive and have safety modifications. The instructor then can occupy a central command station overseeing practice areas or surround a machine with students during procedure demonstrations.

Learners are given specific task procedures to practice. During practice sessions the instructor can make corrective comments as each step of a procedure progresses. Tentative, frightened students are encouraged and kept from personal harm. Equipment damages are minimized, thus, machine and man are less likely to be damaged. The instructor is also less open to the hazards of riding equipment as learners develop their skills.

The headphones diminish the high noise levels of heavy equipment engines. Hearing impairments are lessened while the expert's voice is clearly heard. The headphones are attached to hard hats with variable size capabilities for a wide range of student hat sizes.

The step by step procedure would be (1) for student(s) to have headphones capable of restricting outside noise but enhancing instructor's voice, (2) instructor's headset with sending capability (not voice actuated as any noise may open the channel), (3) machine to practice operational procedure, (4) practice site/lab; (5) student acknowledging instruction by nod or modification of effort.

This type of field training is highly effective and most desirable over other alternatives. Students progress at a much higher rate and have accomplished many more tasks and objectives than students prior to this method's incorporation. Machines as well as student incoming skills have not changed appreciably, but terminal skills are overall greater. The equipment repair costs and downtime due to learner-related accidents are less of a concern. Students have been given more total hours of operation on all equipment due to less downtime. End of year repair costs are less. Headsets have made the difference.

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HELPING STUDENTS GET THEIR POETRY PUBLISHED

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ABSTRACT

This was a Poet—It is That
Distills amazing sense
From ordinary Meanings—

These lines by Emily Dickinson suggest the poetic magic that my students and I shared in English 230, Creative Poetry Writing. However, unlike Dickinson, who published very few poems during her lifetime, most poets want to see their work in print. To teach my students the process of submitting poems for publication, I designed a publication exercise, which complemented other exercises and topics in the course.

I divided the three-hour class meeting into three parts. During the first segment the students and I discussed the homework exercises, which were based on the previous week's lecture. Besides the publication exercise, the students had to complete other exercises, such as listing concrete images, developing figures of speech, writing poems from different points of view, and scanning poems for meter and rhyme. In the second hour I gave an informal lecture on one of the topics listed above. The lectures supplemented information in the textbook, *Writing Poetry* by Barbara Drake. The third part of the class meeting was a workshop in which the students and I read our own poems and listened to comments by the other students.

The publication exercise required considerable advance planning. I first ordered the most recent editions of the *Directory of Literary Magazines*, the *Directory of Poetry Publishers*, and *The International*

Directory of Little Magazines and Small Presses. (The first source is published by the Coordinating Council of Literary Magazines in New York and the last two by Dustbooks in Paradise, California.) Using these sources and the list of poetry markets in the March issue of *The Writer*, I ordered 12 different poetry journals representing a range of quality and editorial focus; for example, *Ally*, *The Mendocino Review*, *Earth's Daughters*, and *Primavera*. (The last two publish work by women only.)

I put the revision and publication exercises about midway through the course after I had covered some of the basic elements of poetry writing and the students had presented several poems in the workshop. The week prior to the lecture on getting published, the students and I discussed revision and looked at multiple drafts of several poems in the text. For the next class I asked the students to complete a revision exercise and to bring in a revised draft of one or more of their poems that had been critiqued in the workshop.

Following a discussion of their revision assignments, I lectured on the strategy and etiquette of submitting poems for publication. I gave the students time to review the journals and decide which one they wanted to submit their poems to. The following week the students turned in a typed cover letter, one or more typed poems, a stamped envelope addressed to the journal of their choice, and an SASE. After checking that everything was in order, I mailed their poems.

Besides teaching the students how to publish their poetry, the exercise introduced them to several journals and some good contemporary poetry. The most exciting part of the exercise was that one of the students had a poem accepted by *Muscadine*.

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DESIGNING WRITING ASSIGNMENTS FOR A STATISTICS COURSE

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ABSTRACT

Report assignments were developed for Math 282, a second quarter statistics class taught at the a Virginia Beach Campus of Tidewater Community College. Our objective in designing these assignments was to develop a means to test the ability of students in Math 282 to understand and apply various concepts and procedures involved in statistical analysis to a variety of practical problems.

These assignments address two separate but related problems. The first problem is that often students in Math 282 fail to understand the concepts underlying the mathematical operations they perform, and they are unable to apply their knowledge of statistics to practical problems. In order to solve this problem, we required our students to write a series of reports in which they described the statistical problems they were attempting to solve, explained the theory which underlay the operation they used to solve the problem, and discussed the procedure they used to solve the problem. We then encountered a second problem. We discovered that the quality of writing in the reports was so poor that we were often unable to determine if the students knew what they were talking about or not. To solve this problem, we designed a standard format and grading sheet for each of the reports.

After we acquainted our students with the basic structure for each report and explained to them the standard format and grade sheet, we asked them to solve a particular statistical problem and submit reports describing the problem addressed and the theory and procedure used in the solution. The first of the problems required that our students select a random sample. The second problem required that they make inferences about a single population. The third required that they make inferences comparing two populations. The fourth and fifth assignments required that the students compare two variables. The fourth assignment dealt with measurement data, the fifth count data.

In our more or less informal assessment of the effectiveness of these writing assignments, we arrived at the following conclusions: First of all, it was very clear that these assignments fulfilled our basic objective: to test the ability of our students to understand and apply the various concepts involved in statistical analysis. Students were forced to discuss problem, theory and procedure in the same context, and as we graded the reports, it was clear to us when students knew what they were talking about and when they didn't. Secondly, we were both convinced that the quality of the students' writing improved greatly. While many students still

students still experienced certain problems with grammar and syntax, almost all were able to lay out the reports properly and address the relevant points of discussion.

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BRAINSTORMING TECHNIQUES FOR IMPROVING CREATIVE THINKING SKILLS

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ABSTRACT

Humanities 206 is a course designed to improve the students' creative and effective thinking skills in practical applications. In order to promote creative thinking skills, three techniques described by Edward DeBono in P O: A Device for Successful Thinking (Simon and Schuster, 1972) were developed for classroom use in the winter quarter, 1985 and used subsequently. These are essentially brainstorming techniques the purpose of which is to demonstrate alternative ways of looking at problems, to promote the development of new ideas, and to protect new ideas from premature rejection.

The first method, the "Intermediate Impossible" pits a succinct statement of a problem such as "proverty" against an outrageous proposed solution such as "money should grow on trees." By using the improbable solution as a creative springboard new ideas may be generated.

The second technique, called "Random-juxtaposition," would force associations between a statement of a problem such as "inflation" and an unrelated concrete noun such as "shoes." The mind, searching for logical connections between these terms would eventually produce new ideas.

The final approach, which DeBono calls the "Challenge for Change" requires the conscious setting aside of conventional thinking about a problem or accepted solutions and asks the thinker to develop as many other ways of solving the problem as possible, suspending judgment and the rejection of new ideas until another time.

While DeBono's work was inherently a self-help book for improving thinking skills, the classroom applications were clear. After instruction in the principles behind these techniques and a demonstration of each in which the whole class participated, small groups were formed and given prepared handouts with problems illustrating each of the methods discussed. Each group chose a recorder to take notes of all observations, ideas, and line of thought produced by each problem. After each exercise was completed the groups chose a spokesperson, usually but not necessarily the recorder, to report on what happened. General class discussion then pursued the similarities and differences in lines of reasoning observed.

Two weeks of intensive training in brainstorming techniques such as these helped to develop the creative and critical faculties of students enrolled in the course, thus improving both their ability to produce new ideas and to consider open-mindedly new ideas proposed by someone else. While no guarantees can be offered about the long term effects of such training on habits of mind or its transferability to other courses or disciplines, on end of term examinations students given problems similar to those practiced were able to demonstrate the techniques learned.

In general, as pedogogical tools, these approaches could be used across the curriculum. In most community college curricula, students could be asked to consider appropriately discipline specific problems in a manner that challenges their assumptions and encourages creativity, thus enhancing their educational experience.

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THE NEWSPAPER AS READING/WRITING TEXT

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ABSTRACT

Day-old newspapers are an affordable, high-interest, supplementary or primary text which can be adapted to all levels of communication students. I have developed exercises using the newspaper in both reading and writing courses.

DEAR ABBY or ANN LANDERS columns can be used to generate writing assignments which students find interesting. I hand out a question to Abby and have the students write replies.

EDITORIALS AND LETTERS TO THE EDITOR can be used to analyze pro and con arguments and rhetorical styles. Using the newspaper examples as models, students then write their own letters to the provost or the school newspaper.

THE SPORTS SECTION is an excellent source of articles using chronological order and imaginative vocabulary. Students enjoy noting the many colorful ways of saying who won or lost.

CARTOONS are a rich source of vocabulary words which students are highly motivated to learn. I delete captions and let students put in their own dialogue. Cartoons are also useful for teaching puns and allusions.

HEADLINES can be used to teach vocabulary, to have students fill in the understood words, and to have students identify parts of speech. Also, students enjoy making up a story of their own from a list of headlines.

FEATURE STORIES, especially about local people, can be used to inspire students. I look particularly for articles about people who have achieved academic success despite obstacles. Students can interview a classmate and write a feature story about him.

BOOK REVIEWS OR EXCERPTS can be used as models of summarizing skills and to inspire students to read.

UNUSUAL STORIES can be used to generate imaginative theme topics. The class enjoyed writing a bizarre account such as appears in *The National Inquirer*.

ARTICLES USED FOR CONTENT include those dealing with education to make students aware of the national concern with school standards and literacy.

CONCERT AND MOVIE REVIEWS, TELEVISION LISTINGS, AND PICTURE CAPTIONS are additional excellent sources of high-interest vocabulary words and colorful descriptions.

Finally, when I notice GRAMMAR ERRORS in the newspaper, I xerox the article and challenge students to find the error.

On the course evaluations which our students fill out I have received positive comments regarding these activities. Students become more interested in reading the newspaper and gain a greater appreciation for all that they can learn from it. I find there is very little grumbling from students who are asked to write these assignments, and students can get started quickly without wasting a lot of time trying to think of a topic.

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THE GREAT SMOKIES NATIONAL PARK AS A NATURAL LABORATORY FOR GENERAL BIOLOGY

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ABSTRACT

As an integral part of biological study (BIOL 101, Honors Section), we use the Great Smoky Mountains National Park to:

(1) afford students the opportunity to study in the "non-walled" laboratory of outdoors, where variables are not controllable and resulting complexities are experienced directly,

(2) obtain, by direct observation, a better understanding and appreciation of a natural environment which has been disturbed minimally by man,

(3) exemplify biological principles learned throughout the course, from the cell to the ecosystem level of organization,

(4) meet the needs of students in a non-traditional manner. Additionally, we offer students the option of credit in Hiking and Backpacking (PHED 128) since the activities are oriented so strongly toward development of outdoor skills.

The Great Smoky Mountains National Park, TN and NC, comprises the largest wilderness area in the eastern United States and is designated as an International Biosphere Reserve. A continuum of plant communities is found, ranging from dry, pine-dominated stands to moist, cove hardwood stands along the moisture gradient; and from deciduous oak-hickory forests to coniferous spruce-fir forests along the elevational gradient. The diversity of plant and animal life make the park an unsurpassed natural laboratory for studying environmental processes.

A fall trip is made at the beginning of the academic year, and is used as an introduction to biological concepts and the diversity of life while providing a rigorous yet rewarding wilderness experience. We lead a five day/four night backpacking trip into the The Great Smoky Mountains National Park backcountry. Pre-trip activities include a comprehensive introduction to backpacking techniques and equipment along with a literature study of the flora and fauna of the southern Appalachians. The focus of this trip is directed toward Honors students, and begins with a visit to the Uplands Field Research Laboratory where students interface with park scientists actively involved in research. They are introduced to studies concerned with several threats to the park environment, including air pollution, the balsam wooly aphid, the European wild boar, the rainbow trout, and people. Thought processes are initiated here and are then directly applied in the backcountry where we ascend in elevation through a wide variety of habitats and community types to the summit of one of the highest peaks in the park. On this trip, many stops can be made along the trail to demonstrate ecological concepts firsthand; furthermore, group cohesiveness and biological awareness established early in the academic year is beneficial to both instructor and student.

It is easy to explain the biological importance of such a trip but the intangibles involved with this activity are often just as rewarding for our type of student. This is the first experience for many away from home where they visit restaurants and museums, budget money, and are enlightened in ways impossible to describe. Some, on the other hand, have never camped before this excursion; these individuals have never heard an owl hoot or a bobcat scream, nor have they had to protect their belongings from wild animals such as bears. We feel this exposure is part of our mission in the community college system in producing better citizens and well-rounded people. Several former students have cited this trip as the reason for pursuing careers in field biology.

In summary, participation in this unique experience instills in the student not only biological and wilderness knowledge, but also group cooperation and fellowship not available in other types of activities. Additionally, the personal accomplishment of surviving in the backcountry and being exposed to a world outside of our service area are important aspects that cannot be directly evaluated.

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STUDENT DESIGNED LABORATORY EXERCISES FOR PHYSICS

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ABSTRACT

When I began teaching physics at Piedmont Virginia Community College in 1983, I was faced with a dilemma. From earlier experience, I had seen that students' attitudes towards physics, especially required physics courses such as the ones I would be teaching, left much to be desired. How could I encourage the students to take more ownership of the course and become more actively engaged with the content?

I wanted to develop and implement a teaching strategy to involve my physics students more deeply with their learning. In particular, I felt that it was important to discourage a "plug and chug" approach to physics, in which the mental activity of the students consists of selecting an equation, substituting values into it, and calculating a result. Rather, I wanted students to be involved with understanding the concepts being studied. In order

to accomplish this, I designed a laboratory program which required the student lab groups to design and carry out their own experiments. This placed the responsibility for learning and understanding squarely on the students.

The Program

At the beginning of the school year, I described to the students my laboratory requirement of each week: to design and carry out an experiment which will help with the understanding of the physics concepts we were studying. Naturally, this was met with some initial resistance, because it was an extremely unfamiliar type of assignment. (Most science students are accustomed to filling in the blanks of a laboratory "cookbook.") As I explained more details of the program, the students seemed to become aware of many attractive possibilities, and expressed a willingness to give it a try. I arranged for computers, classical laboratory apparatus, and assorted tools and materials to be available, as well as special equipment requested for particular activities. The powerful Logo computer language was introduced to the students as an interactive tool for exploring physics concepts. I included in each lecture a number of suggestions for laboratory activities.

During the lab, I filled the role of a facilitator or guide, rather than a lecturer (as in the previous class meeting). If a group was having difficulty getting started, I made a few suggestions. In occasional extreme cases, I gave detailed requirements. As students began to assemble their apparatus, I asked questions designed to increase their understanding of specific physics concepts, and give them additional ideas for their activity. During the laboratory period, I encouraged students to visit other experiments and learn what their classmates were doing. This stimulated interactions which engaged the students deeply in the tasks at hand. When possible, I suggested that students use the results of other groups, with appropriate citations in their reports. For example, if one group was designing an instrument to measure the strength of a magnetic field, another group might use the instrument to confirm the results of their magnetism experiment in an additional way.

I required that the student groups write their laboratory report "as they go" and submit it at the conclusion of the activity, rather than taking their data and notes home and recopying them into a "clean" report. This action modeled the maintenance of research journals in actual research laboratories. It also freed the students to concentrate on the work and not on the superficial appearance of the presentation of the results. Additionally, it encouraged them to report their "goofs" as well as their triumphs. Some of the most important learning in science is from things that do not work as they "should." I feel it is important for students to be free to explore this important "why." I graded the laboratory reports rather liberally, to encourage innovation and creativity. I did not want a student to worry if an innovative experiment did not perform as expected. The process was as important as the product. I suggested to the students that the opportunity for ownership of their experiments and for flexibility in their actions were important ingredients in their learning.

Did It Work?

The effectiveness of this program was measured by indirect means and informal observations. After the first two or three laboratory meetings, students began to sense how they could use apparatus from home or from the job in their experiments. Several students related the physics concepts to their hobbies or career fields, and designed extremely creative experiments. They began to relax and enjoy their laboratory meetings. Often, students stopped me in the hall between classes and told me excitedly about an idea they had for the coming laboratory. In addition, many students chose to extend their laboratory work on their own time for extra credit. I believe this enthusiasm was an indication of affective learning, a powerful companion to understanding.

During laboratory meetings well into the course, I observed students taking an interest in the experiments of others, and asking questions about them on their own initiative. This type of behavior is not observed (and probably not encouraged!) in more rigidly organized laboratory classes. Part of my overall grading scheme consisted of a quarterly self-evaluation by each student. The result was accepted as 10% of the final grade in the course. In the narrative section of this self-evaluation, extremely positive spontaneous comments about the laboratory system often appeared. Typical comments were, "I love the way we do our labs!" and "Don't change the lab system. I enjoy making up my own experiments."

I have also observed longer term changes in student investigative behavior over the course of a year. Here is a brief case study as an example.

The third quarter of our physics program includes the study of magnestism. One particular lab group had made heavy use of Logo and the computer. For their magnetism lab, however, they decided to use classical apparatus instead for an activity to duplicate Oersted's famous experiment (sending an electric current through a wire to establish a magnetic field outside the wire). They set up the apparatus and used a compass to detect the direction of the magnetic field at various places. At one point, however, the compass needle behaved strangely. After some discussion, one student suggested that perhaps their magnetic field had cancelled out the magnetic field of the earth. They did not have an understanding of how this could happen, so they went to the computer and used Logo to set up a current-carrying wire in an external magetic field. By studying the magnetic lines of force, they saw immediately how the field has a value of zero at one particular point. They then returned to their apparatus, performed a few other measurements, and realized that, if they had cancelled the earth's field, they should be able to predict its value! After a few moments of calculating, they produced a value which was within 10% of the accepted magnitude. They were quite excited at this accomplishment! Needless to say, this result was not anticipated at the beginning of the lab.

The general behavior of the students in this case

study was quite different at the beginning of the course of study. Earlier, they were hesitant, fearful of "making mistakes," and generally tightly constrained in their thoughts and actions. As a result of their increasing self-confidence during the year, they felt free to explore the questions which they encountered in the course of the magnetism experiment. In this case, the direction of the entire lab activity was changed as a result of their curiosity about the behavior of the compass needle.

I feel that such long term changes in investigative behavior were indications of students willingness to become more involved in the understanding of the physics concepts under study.

Occasional extradinary performance by students was also observed. In 1985, for example, two students got interested in the motion of an airplane seen in a photograph and the mechanism of a mass driver for propelling matter from the moon into orbit. They developed powerful computer models of these phenomena using Logo and explored a number of different configurations. They wrote a joint paper about these projects and their other physics course investigations with Logo which was accepted at an international conference at the Massachusetts Institute of Technology that summer. Finally, an article I wrote on the combination of using Logo and self-designed laboratory exercises was published as the cover article of the January 1986 issue of *The Physics Teacher* journal, and was well received. A number of students were involved in the production of the article and the accompanying photographs. They were extremely proud that they were doing something important enough to get published.

In summary, the concept of self-designed laboratory experiments has become a comfortable one to my students. As a result, they seem to be much more involved with their learning, and seeking personal understanding of the physics concepts we studied. How could I ask for more? With my students I have designed my own laboratory strategy, and I want to remain free to explore additional possibilities. In this way, I can learn from my student, and strive for an even deeper understanding of the mechanisms which affect their learning.

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A SORTING MODEL FOR GEOLOGY STUDENTS

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ABSTRACT

The introductory geology and oceanography programs at Tidewater Community College include a broad spectrum of topics covering various aspects of the physical, chemical, and biological factors affecting geology and oceanography.

Many first quarter students have difficulty understanding new concepts. One difficult concept, with respect to sediments and sedimentary rocks, is the subject of sorting. Sorting is a sedimentary process whereby grains are separated according to their size, shape, or specific gravity. The separating process is performed by the action of wind or water.

The determination of sorting is important for the understanding of the environment of deposition of a sediment or sedimentary rock. A sediment that is well sorted will have mineral grains of similar sizes, shapes, or densities and is interpreted to have a high degree of working by wind or water. An example of well sorted sediments are those found in a sand dune. Dune sands are continuously worked by wind capable of winnowing out the smaller grains leaving behind a relatively uniform grain size. A sediment that is poorly sorted will have mineral grains of different size, shape, or specific gravity and is interpreted to have a low degree of working by wind or water. An example of poorly sorted sediments are those found on a flood plain. These grains are sporadically worked by water and there is little winnowing or removing the smaller grains.

The apparent difficulty for some students in the concept of sorting is to understand how a sediment is size sorted by the winnowing action of water. To demonstrate the separation of grains by the sorting process, a model was developed.

The model consists of 1) a large bowl containing water with a mixture of sand and silt several inches below the water surface; 2) a propeller attached to a small electric motor; and 3) an optional rheostat for regulating the velocity of water flow. The water is put in motion (to simulate a current) by the motor-driven propeller. As the water velocity increases, the smaller silt sized particles are picked up into the water column leaving sand on the bottom.

In the real environment, the silt would be transported out of the system leaving a well sorted sand. The formation of a poorly sorted sediment can

also be demonstrated by slowing the propeller speed with the rheostat. The slower propeller speed has the effect of allowing smaller silt grains to become incorporated in the bottom sediments.

I use the model for two laboratory classes, one geology and one oceanography. Student response to the model is favorable and results in fewer missed questions on tests.

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A TEAM APPROACH TO TAKING NOTES

Tom McKnight
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ABSTRACT

Research demonstrates a direct correlation between the ability to efficiently record class notes and academic success in post-secondary education. This skill is an important step in the educational process whereby students become responsible for their own learning. Responses on the Comparative Guidance and Placement Test (C.G.P.) given to entering students at Southwest Virginia Community College confirm that freshmen perceive a need to improve their study skills. A random sample of C.G.P. student responses in the fall quarter of 1985 documents over 150 requests for help to improve study skills.

To further determine the extent of this need, I surveyed the entire faculty at SVCC to ascertain what percentage of each course is taught by lecture, what activities instructors do to acclimate students to a particular style of information delivery, and what five areas are most commonly missed on exams. As expected, the survey, itself, generated much discussion concerning definitions of personal teaching styles and practices. Dialogue between students and instructors and between instructors within and across disciplines proved valuable—the survey, itself, fostered communication between note-givers and note-takers.

After tallying the responses to the survey and sharing the results with faculty, I designed a note-taking workshop to address eight major needs/objectives expressed by faculty and students. I advertised the workshop in SVCC's student newspapers and offered the format as a supplemental learning opportunity for General 100 (Orientation to SVCC) students. The response was overwhelming—98 students attended the scheduled workshop, and requests generated a second workshop during the following week. The second workshop drew 65 students. During the fall quarter of 1985, a total of 163 students attended the workshop to learn how to take better class notes. Students reported more confidence in themselves before and during tests, and instructors reported more assertive questions from students concerning testing formats, methods of organization, and study needs.

Workshop evaluations revealed that 90 percent of the participants 1) gained useful information,
2) became more aware of the strengths and weaknesses of their own note-taking styles,
3) planned to incorporate the suggested abbreviations into their personal note-taking style,
4) would recommend the workshop to their friends, and
5) would welcome additional workshops on other areas of study skills.

Other positive outcomes of the workshop included: 1) the organization of a study skills seminar for one hour of academic credit, and 2) a request from the director of freshman orientation to incorporate the note-taking workshop into the regular format of the General 100 program.

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VOCATIONAL EXPLORATION IN NATURAL SCIENCE

Nancy Willis Makin
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ABSTRACT

I have found that students, even if they have decided on a science major, often have not decided on a specific goal, do not have a well defined idea of what a science career might involve or what the possibilities are, and do not have a clear idea of how to realistically achieve a goal in science. This particular course, "Vocational Exploration in Natural Science", was designed to help reaffirm interest in science careers, perhaps open new doors of interest in science, and also to provide a realistic background to successfully make career decisions and to achieve a particular goal in science.

My objectives for my students in "Vocational Exploration" are that they: (1) develop a better understanding of what is actually involved in field and laboratory science careers, (2) obtain a realistic picture of the job market in a chosen career including educational requirements, demand for the career, pay scales, companies and institutions employing such occupations, (3) determine the means to achieve a chosen career goal by identifying appropriate colleges, requirements, and curricula, and finally (4) obtain first hand experience in a science career.

To achieve the objectives the students first have research assignments both in the laboratory and in field work which I direct. The class also involves resource persons from the community who are actually working in the field who may make individual presentations to the class, participate in a career panel discussion or provide tours of local laboratories, companies, or agencies. The students also become familiar with career information available through the college library and student services. Finally the student may become involved in job shadowing, internship, or eventually a cooperative education program.

I first used this format for a group of senior high school students interested in science who were participating in the Rappahannock Regional Upward Bound program which was jointly sponsored by Mary Washington College and Germanna Community College. The curriculum was subsequently adopted by the business, psychology, sociology, and arts instructors for their groups and continues to be used by Upward Bound. I felt that the experience was so valuable to these students that I scheduled the class as Natural Science 298 and also have used portions of the material as a part of a science club seminar series.

I have seldom been in charge of a course which generates so much excitement, enthusiasm, and interest throughout. All of the students who have been involved with the class found it to be extremely interesting and very useful in making and in pursuing career decisions. I am often told how interesting the class is and of equal importance I am able to see students make realistic decisions about their careers and how to pursue them.

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TEACHING PROGRAMMING IN TURBO PASCAL

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ABSTRACT

I have developed and tested a problem-solving approach to impart skills in structured computer programming. As high speed personal computers are easily available and becoming increasingly popular, our students learned to use the AT&T PC6300 System to write and run TURBO Pascal language programs.

The objectives of this course are

a. to familiarize students with Pascal language,
b. to teach students good programming practices and program debugging techniques, and
c. to enable the students to successfully write good working Pascal language programs on the first try.

Methodology

1. I prepared course descriptions, syllabus, and selected a suitable textbook for this course.
2. I studied existing facilities in the College for implementation of this course.
3. It is very important that students have hands-on experience with computers in solving practical problems, so I developed ten

different problem assignments for students.

Each student worked on these problem assignments independently. Students were allowed limited discussion with their colleagues about the assignments. A program put together with little thought often contains many errors and results in waste of computer time and frustration.

I mention below the main aspects of my approach in teaching structured programming.

1. Read a problem assignment a few times and understand the main purpose of the assignment thoroughly.
2. Write in simple English steps that are relevant to the problem solution even though they cannot be translated directly into Pascal code. Then the students develop simple and efficient algorithm (step by step procedure) to solve the problem. The algorithm provides a general picture of different units and subprograms that the main program should contain. After developing the necessary algorithm, students translate the algorithm into Pascal code.
3. Start the documentation early in the development of a program. The program written by translating the algorithm into Pascal code as mentioned in step 2 does not have sufficient documentation and many students try to run the program on the computer and include some sketchy remarks at the time of handing in the program to the instructor. The method of including remarks at an early stage makes students think about structure of the program. It also helps to make the program easier to debug, easier to make the necessary modifications, and easier to use the program.
4. Calculate "hand-check" solution for programs. The student should choose a sample input and calculate the output values at different units of the program as if he/she were the computer. This technique of calculating "hand-check" solution exposes errors or bugs in the program and helps students to "fix" the program quickly. This procedure makes sure that each logical unit of program performs correctly, and it also significantly reduces the computer terminal time and debugging time.
5. Produce good output when the program is executed by the computer. Many programmers are usually satisfied if their program is executed successfully, and they do not give much thought to the form of output listing. This makes it difficult to understand and interpret output listings. I teach students to write programs which produce output listings with ample annotations so that it is self-explanatory in nature.
6. Hand in program listing and details of algorithm used. The students also submit 5 ¼" floppy diskettes where their programs are stored. I personally run their programs and check the efficiency and performance of their programs.

Evaluation

Some beginners think it is good to learn all about Pascal language first and learn good programming practice later. I used a structured approach in which I taught students good programming practices in conjunction with the basics of the Pascal language. I found that it takes more time to write a computer program with my approach, but it significantly reduces the computer terminal time and debugging time.

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SELECTING A BUSINESS OPPORTUNITY

Mike Oliphant
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ABSTRACT

The workshop *Selecting a Business Opportunity* was offered as the first in a series of workshops for individuals interested in starting or expanding a small business. The course was designed to help individuals identify market opportunities, develop a marketing plan, and assess the potential for the success of the plan.

The objectives of the course were:

1. The student will describe the small business environment.
2. The student will generate business ideas.
3. The student will analyze personal resources.
4. The student will conduct market research.
5. The student will apply market segmentation.
6. The student will identify market opportunities.
7. The student will identify home business opportunities.
8. The student will estimate break-even sales.
9. The student will prepare a business plan summary.

The goal of this workshop and the other workshops in the Small Business Ownership series is to diversify the economic base of the region by

encouraging entreprenurial activity.

This course was offered as a one-credit hour course in November, 1985. Thirty-two participants attended the course, which was held in three evening sessions of three hours each. The course was held off-campus in the community room of a local shopping mall. This course was the first college course for several of the participants. Many of the enrollees indicted that the convenience of the shopping mall location influenced their decision to enroll. An evaluation instrument was administered at the conclusion of the workshop. All participants agreed with the statement "I was given a good working knowledge of the subject." Many participants have enrolled in one or more of the subsequent workshops in this series or in other scheduled college classes. The other workshops are also one-credit hour courses and topics include:

Making The Right Legal Choices
Keeping Tax Records
Getting and Keeping Good Employees
Keeping Accounting Records
Advertising For Results
Developing a Small Business Plan

These workshops were co-sponsored and promoted by the College's Small Business Assistance Center and the Business Division. The short course format has been favorably received and is serving a need that was not previously met by regular term courses.

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A TELECOURSE ON STUDY STRATEGIES

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ABSTRACT

The television portion of this course is composed of ten thirty minute programs which are broadcast over the local educational channel each quarter. The other major component of the course is a workbook which the student uses while watching the televised programs. The student's completion of the workbook constitutes half of the course grade. The other half is earned on the final examination.

The major topics covered during the programs are study resources, time management, a study system, reading improvement, memory improvement, notetaking and listening skills, classroom conduct, preparation for and taking examinations, test anxiety, and oral and written reports. The final program reviews highlights of the previous programs. There are two meetings with the instructor, the initial meeting to pass out the workbooks, answer questions and cover other course requirements, and a final meeting to collect the workbooks and administer the final examination.

The project was accomplished over a two-year period by first writing the script for a given program. This entailed writing an exact narration for the actors, providing setting details, and including specific instructions for the camera personnel.

The second step involved coordinating of the actors, equipment and background scenery for each scene in the program – this was extremely time consuming.

The final step was the editing, cutting, etc. to put all the scenes and visuals together to form the finished program of exactly twenty-eight minutes and forty seconds. These three steps were repeated for each of the ten programs.

The course was presented for the first time during the winer 1986 quarter to forty-nine students. The class included students in their first quarter as well as students near graduation. The student evaluation was overwhelmingly favorable with 90-98% of the students agreeing that the programs were clear, informative and interesting, and that the course objectives were fulfilled. All students thought the course examination was fair and comprehensive, and that the workbook contributed to the course and was worthwhile. Three of the students thought the textbook was unnecessary.

As the program director, these initial comments were pleasing and better than expected. A longitudinal study will be conducted over the next 12 months to determine whether the course has a positive effect on the success of a student completing it.

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ADVERTISING DESIGN AND METHODOLOGICALLY BASED SOLUTIONS

Pamela A. Ovide
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ABSTRACT

A real-life, student/client relationship is initiated in Advertising Design 263 to teach the students a method of research-based solutions for design problems.

Each student picks his own client. It may be someone with actual advertising needs, a friend with a business or an establishment with which he is extremely familiar. Through critiques of his actual thought processes, and through previous work, he is introduced to the strategic process of answering a client's needs more directly and concisely. He is then given an outline with five specific questions which are intended to target the problem areas needing advertising attention, pinpoint the audience in its particular advertising market, determine the message to convey, and make an educated decision on the vehicle most likely to capture the target audience.

The demographics collected will serve as a marketing analysis in-lieu-of a professional report. He is then required to type an outline of the findings and submit it to the instructor. After the student has collected and organized his information, he must make a presentation to the entire class discussing the problem, message and solution. His solution then must be soundly based on the marketing information collected. The class acts as the client, offering other suggestions which often reveal faulty reasoning in student's decisions. The solutions are then reassessed and the proper vehicle for the final project becomes obvious.

After all of the presentations have been made, each student works individually on his appropriate medium of execution, whether it be a poster, newspaper or magazine ad, or television or radio spot; but each student's vehicle must fit his client's needs.

Some students have actually found clients that will be paying them for their service. The biggest payoff, however, will be the finished piece itself; and, for the most part, this will be the typical student's first "printed" portfolio piece, an invaluable aid in his inevitable search for a full-time position.

The new approach has been quite rewarding in several ways: It involves the whole class in every project, rather than the typical one-on-one laboratory situation. This learning process is a varied and continuous one, and it provides the students with practical experience.

My initial reservations were that, after the first group of students had made their presentations, they would not come to class the following period. On the contrary, it took there class period to completely cover all projects, and each subsequent day brought a full house. The attendance reinforced the idea that there was valuable and varied information to be learned from every project.

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A NON-TRADITIONAL METHOD FOR TEACHING MATHEMATICS TO OCCUPATIONAL/TECHNICAL STUDENTS

Joseph Payez
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ABSTRACT

Paul D. Camp Community College currently has occupational/technical programs in drafting, welding, applied electricity and auto mechanics as well as steno-clerical arts and clerk studies programs. Prior to the implementation of the non-traditional method for teaching math to occupational/technical students described in this project, mathematics was the study area which caused the most difficulty for these students. The traditional lecture method simply did not work well with them because they could not see the relevance of the course materials to their programs and therefore were not gaining the mathematical competence needed.

An effort was made of our math faculty to structure our occupational/technical mathematics course to fit the specific student needs within each occupational/technical program. To accomplish this objective, the mathematics faculty, in conjunction with the occupational/technical faculty developed separate units of instruction for each occupational/technical program. In addition to seven basic units of instruction containing common arithmetic subjects found in the textbook *Arithmetic*, 3rd edition, Barker, et al., which was already being used in our developmental mathematics classes, seven additional specialized units were written to cover material required in one or more occupational/technical field, but either not covered at all or not covered in sufficient detail in the basic text. Whenever possible, these supplemental units were written in the jargon of each of the occupational/technical areas and separate course outlines for each occupational program were prepared.

The basic method used for the classes was very similar to that used in our developmental classes. Therefore, we combined the two into one mathematics laboratory, and we now have numerous five-hour sections per week, as well as many hours of free time when a mathematics instructor or an assistant is present in the laboratory. Since our student body includes many part-time students who work swing shift, alternating between day and evening schedules, the procedure of allowing a student to come at any time when the laboratory is open has been adopted. Although mathematics will probably never be the favorite subject of occupational/technical students, this system enables them to learn math at their own pace.

Evaluations by the occupational/technical faculty and students alike have been positive largely because the students are able to see the relevance of the math units to their vocation and not just as an obstacle to keep them from graduating in their programs. Prior to the implementation of this program, less than 50% of our occupational/technical students were successful in fulfilling their math requirements for graduation. Many who did graduate took from two to three times longer to complete their occupational/technical math requirements by the lecture method than they have using the self-paced materials. By using this self-paced approach, the great majority of students are able to complete their math requirements in one quarter or less, while less than 20% take as many as two or three quarters. Drop-outs from self-paced mathematics courses have been fewer than under the previous lecture methods.

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TCC STUDENT WRITING GUIDE

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ABSTRACT

The TCC *Student Writing Guide* is the result of efforts of the Literacy Committee at the Virginia Beach Campus of Tidewater Community College. Committed to improving the reading and writing skills of students, this cross-disciplinary committee seeks ways to help both students and teachers. Aware that writing has been proven one of the most effective tools for learning, the committee offers professional development workshops and distributes various publications to encourage writing in every academic field. The first of these publications was the 1985-1986 *Student Writing Guide*.

The Tidwater Community College *Student Writing Guide* is a booklet designed to help students and teachers in every field of study by presenting the reasons that students should write in every subject, the expectations of employers that their employees can write skillfully, and models that demonstrate the types of assignments and responses that typify many introductory college courses. In addition, the booklet offers advice for student writers.

For teachers, the guide reinforces the decision to include writing as a course requirement, demonstrates actual assignments and acceptable student responses in various fields, and supplements the teacher's instructions about written work.

In 1985 members of the committee established an editorial board which collected writing assignments and samples from teachers in various divisions. This board then solicited and edited student papers and commentary from teachers and division heads who endorse the concept of writing for learning. Every member of the literacy committee contributed to some aspect of production, and many people who were not members of the committee offered suggestions, student papers, and art work.

Fifteen hundred copies of the *Student Writing Guide* were produced in January of 1986. By mid-May, all copies had been distributed to students

through faculty members who believed it would be helpful. The cross-disciplinary value of the publication is evident from the courses in which the booklet was distributed: geology, respiratory therapy, computer science, business administration, history, law enforcement, media production technology, and English.

The Literacy Committee plans to produce an updated booklet for 1986-87. The new booklet will contain additional student models and will have a more professional appearance than the current version.

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AN IMPLEMENTATION OF THE PROCESS METHOD IN DEVELOPMENTAL WRITING

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ABSTRACT

English 09 Language and Thought is the second quarter of a two-quarter series in Developmental Writing, which is intended primarily for students who did poorly in diagnostic testing of their writing ability.

The purpose of this strategy was to get these students to *write*, in non-busy-work situations and assignments; to take them beyond the all-too-easy (for the instructor, at any rate) "testing" on grammar and punctuation and into the *use* of such "rules"; to let them see that writing has causes and consequences in the "real world"; to let them enjoy the excitement and sense of empowerment of that discovery.

There were seventeen students in the class. We began by talking about the idea of a "Utopia" (I spoke briefly about Thomas More's book and *his* prescriptions), and the kind of world *we* would like. As a class, we decided that the three areas we would most like to change were marriage, education, and criminal punishment.

Then, I divided the class into three groups, approximately equal in size: one group all male; one, all female; the third, mixed. For the next three consecutive class periods and for approximately twenty minutes of each class, these three groups met *as* groups, to take up the issues of marriage, education, and criminal punishment one at a time (i.e., one issue per class session). Students were asked to take notes not only of who suggested what, but also of *group* reaction *and* of their *own* reaction to each proposal. I monitored these sessions, but had little to to at this point beyond making sure that there was writing as well as talking going on.

At the *fourth* session, still in groups, students reported on their proposals and decisions; the results were fascinating and led to much class discussion. Students began to see – and talk about – how words, issues, values, rankings do not exist only in dictionaries or as eternally "right" and "wrong" moral entities, but are defined and rated by lives and experiences and passions.

Finally, the students were asked to write papers based on their groups' discussions and their own discoveries. These drafts were checked first for accuracy of accreditation, content, and organization for order of emphasis; later drafts were checked for grammar, punctuation, and spelling. The students read their papers aloud in class (some elected to have me read them aloud instead) and were excited by the reactions: sometimes groans and catcalls, sometimes "Right on!" and cheers. They had written words that affected others, that *mattered*.

This exercise achieved several things:

- Students discovered that a piece of writing must begin with content and that content will differ from source to source.
- Because the content came from themselves, each individual gained the sense of empowerment that derives from becoming part of the world of those whose words are reported and acknowledged. This is a heady feeling.
- When students discussed the order (Aristotle's "Disposition") in which to arrange their content, they began to understand how order-of-emphasis affects the reader's interpretation of what he reads. Students learned their power and also their ethical responsibility for the ordering, within sentences and paragraphs, of their content.
- It's all too easy for students who have "always had trouble with English" to equate this business of English with spelling, punctuation, and grammar. This exercise helped them to see that such matters, while certainly important, come at the end of the writing process rather than constitute its entirety.
- Coming at the end of the Developmental

series, this exercise provided a necessary transition from the strenuous-but-safe world of grammar, punctuation, etc., to the "real world" of Freshman Composition.

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USING LIVE AUDITION EXPERIENCE TO PROVIDE STUDENTS WITH A SENSE OF PROFESSIONAL THEATER

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ABSTRACT

As part of the Acting sequence at Dabney S. Lancaster Community College, students are encouraged to take part in professional and amateur auditions at various locations throughout the year. This project is intended to:
a. build confidence and self-esteem; b. introduce potential performers to the world of professional theatre; c. illustrate the requirements involved in obtaining a job as an actor; and d. provide students the opportunity to audition for work as paid performers on a part-time or full-time basis.

The annual auditons sponsored by the Virginia Theatre Conference, the Southeastern Theatre Conference, King's Productions, Inc. (King's Dominion), Walt Disney World, and the National Shakespeare Conservatory provide the young actor with hands-on experience in auditioning and evaluating their own performance compared to the performance of others.

This is the first year of the audition project and it has been successful. The first audition came in October at the Virginia Theatre Conference. This was a screening audition where successful performers would go on to regional auditions in March. There they would audition for summer theatre companies and full- or part-time paid jobs as actors.

Beginning with SPDR 111, the first in a three quarter sequence of acting classes, students prepared for the "professional audition." In addition to other coursework, students were instructed on résumé planning and writing, résumé photos, "selling yourself as a package," acceptable and unacceptable behavior at an audition.

At the audition the student is to focus on how auditions are conducted. Are the adjudicators friendly, or at least respectful of the auditionees? Attention is called to those auditionees who are not respectful of the adjudicators or who do not follow standards of conduct discussed in class. In debriefing these problems are discussed in terms of their effect on an individual's success.

After the audition, debriefing becomes an important part of the process. A discussion of individual performances addresses what each students feels was done effectively and what was not. Expectations set up prior to the audition are compared to the reality of the audition as each student experienced it. Evaluation and change become an integral part of the curriculum as the student decides what did and did not work and what adjustments need to be made prior to the next audition.

DSLCC is located in a rural community, more than an hour from Roanoke and more than two hours from Charlottesville. There is a lot of talent in the Alleghany Highlands, but there is not a great deal of opportunity for that talent to vent itself. By using the audition project as part of the Acting sequence at DSLCC, students have the opportunity to explore theatre at a minimal risk. A life in the theatre is not for everyone, and students are neither discouraged nor encouraged to pursue such a career. Career decisions, however, must be based in reality. The auditions project serves the student a slice of reality, allowing the individual to make responsible, well-informed decisions and acquainting the individual with the good and bad consequences associated with such decisions.

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A LABORATORY EXERCISE IN HUMAN MUSCLE ANATOMY AND MOVEMENT AWARENESS

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ABSTRACT

This laboratory exercise is performed during the first quarter of human anatomy and physiology, following lab and class exposure to information on the skeletal system and joint structure. The overall purposes of the exercise are to acquaint students with basic surface muscle anatomy on a human model, to experience first-hand the application of kinesiological principles, and to refine their movements using visualization; the lab is therefore both theoretical and experiential.

The muscle anatomy portion of the lab involves drawing surface muscles on a willing human model. Each muscle is drawn from origin(s) to insertion(s) as much as possible, with muscle fiber directions indicated. Students can thus visualize the fibers shortening and moving the skeletal system.

After having drawn a muscle (carefully), the model is asked to perform a movement or hold a pose that accentuates that muscle. Students can then, if they wish, mimic the movement and palpate on themselves.

The movement awareness part of the lab involves both theory of proprioception (the awareness of muscle tension and limb location) and experience in sensing and refining one's movements.

I introduce the Weber-Fechner principle by a demonstration. This principle says that the greater the existing tension in a muscle, the less the awareness of additional tension to that muscle. The demonstration consists of adding weights to an unloaded arm versus an already loaded arm. Invariably, the student in the demonstration is much more sensitive to additional weight in the unloaded arm. We then discuss this principle as applied to human stress reduction.

I next demonstrate on a student, the interconnectedness of skeletal muscle tissue by passively flexing the student's biceps brachii muscle of the upper arm. When I've reached the maximum flexibility for the arm, I announce that I'm going to drop the arm, then do so. Without failure, the student experiences an elongation of various muscles on the side of the body I worked on, even to the foot. In one case, the student almost fell over because of these re-arrangements. For a few minutes, we discuss the theory behind what we'd observed, and then students pair up and perform and receive on each other. I ask them to do both arms, lest the poor subject experience a split body all day!

Lastly, we discuss the role of the proprioceptive centers of the brain, that portion of the cerebral cortex that constitutes our "body image." Then we experiment on increasing the range of a particular movement, usually turning at the waist. We demonstrate how, by increasing awareness of a joint, and decreasing tension in muscles around the joint, mobility can be dramatically increased. Finally, we increase the mobility of the same joint on the other side of the body by visualizing the motion rather than by doing it. Very often, the increased flexibility is even more dramatic on this side. We then discuss possible mechanisms to explain this phenomenal, seemingly passive change.

Since I don't evaluate each lab, I don't have an entirely reliable tool to report here. Student commments on the lab, are, however, quite favorable. They like the use of human models rather than cats. When I did this lab using skinned cats, the mood of the students was less than enthusiastic. Many of the comments about this lab prompted me to use human models. Students seem to grasp more easily how to predict a muscle's function after having drawn it on a person. The movement portion of the lab often astounds students and challenges some of their long-held notions about human motion and the role of the brain in movement. Again, their comments are very positive. For many students, the experiencing of increased flexibility from increased awareness has stimulated research into this novel area. Overall, it seems that students attain insight into what are very complex processes through both experience and discussion.

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PROJECT INTERTWINE

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ABSTRACT

Project Intertwine is the interdisciplinary program we have designed to address the needs of our "high risk" developmental students. *Intertwine* consists of a series of sequenced exercises, facilitated by a college counselor and coordinated through a basic English course called Verbal Studies Laboratory.

Early in each term, the counselor and teacher orient the basic writing students to the demands of the academic routine. Through the use of structured, small group activities, students are introduced to appropriate forms of in-class participation and effective study and decision-making strategies. Gradually, the "counseling component" focuses more specifically on the demands of a composition class.

We set out to create classroom assignments based on elements of the writing process. This included discussion and brainstorming prior to actually writing and ample class time devoted to composing and revision.

By teaching in tandem during one or two hours of this five credit course, we were able to engage our often reluctant students each class. Both teachers and students learned to write for many audiences and for different purposes. Throughout the course, evaluation was made as painless as possible by concentrating on what was communicated rather than only what was correct.

The adapter grant enabled us to formalize our team-teaching assignment and to develop additional counselor/faculty collaborations in the campus writing center. After years of staff turnover and innovation, we found it valuable for a time to limit experimentation with new activities in order to better organize goals and objectives of the program. We revised dittos, established a "hand out" file in the Counseling Center and trained a new counselor to facilitate the classroom activities.

Currently, we are evaluating program retention statistics provided by the Office of Institutional Research.

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A UKULELE METHOD FOR NON-MUSICIANS

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ABSTRACT

The autoharp is the instrument that is most often used in music classes for teachers because it is the easiest accompanying instrument to learn to play. It is, however, difficult to learn to tune and too expensive for most college students to buy.

A good soprano ukulele, however, can be purchased for much less than an autoharp, or even a college textbook. Furthermore, it is much easier to tune than the autoharp, and is easy to learn to play in the limited time provided in most courses.

In EDUC 108 Music and Movement for the Young Child, learning to accompany children's songs is only one of several course objectives. The further limits of a ten week session make it necessary to use a direct, rote approach to teaching the uke (similar to the Suzuki method for violin), if any skills are to be developed which will have lasting benefit. Although students don't learn to read notes with this approach, they do experience immediate success with this instrument.

I developed this method so that students could accomplish the following performance objectives: play tonic, subdominant, and dominant 7 chords in the keys of C, F and G; determine key signatures and find I, IV, and V7 chords in any given major key; transpose simple songs containing no more than three chords (I, IV and V7 chords) into the keys of C, F and G; determine by ear when chords need to be changed in a I, IV, V, I sequence to support the melodic line; strum in 4/4, 3/4 and 2/4; sing and play any of the 50 children's songs practiced by the group; use the ukulele as an accompaniment in a music or movement lesson presented to young children in a laboratory setting.

To accomplish these objectives, I developed a booklet which introduced each of these skills in a sequential manner with much repetition for the purpose of providing practice. For example, students first learned to play and read the symbol for a C chord and to strum in 4/4, 3/4 and 2/4. Then, they

were introduced to the G7 chord and given exercises for practice in changing chords using each of those time signatures.

At the next level, students were taught to sing a simple children's song requiring only a I, V7, I accompaniment sequence. Then, they listened as the instructor sang and played the song, changing the chords only when the students perceived a dissonance. This activity was a sensory motor reinforcement for what students perceived auditorily. Surprisingly, even students who have difficulty singing in tune were able to indicate when chords needed to be changed to support the melodic line.

After students learned to play these songs by ear, they were shown the music with the chord symbols indicated and encouraged to play, using the music. Next, they were introduced to the IV chord (F) in the key of C and immediately, the number of songs they could play by ear was doubled. Students were then encouraged to make judgements about which keys were more appropriate for each of the songs they wished to accompany.

Obviously students who completed this portion of the course were not accomplished players and their knowledge of music theory was limited. However, the greater goal of giving students a musical instrument which can be used for their own musical growth and enjoyment and as a handy accompaniment instrument in the classroom was accomplished.

In five sections of this class, only 4 students have been unable to complete 80% of the performance objectives given above. Each skill was demonstrated in performance checks played in groups of two. The final skill: using the ukulele to accompany a music or movement lesson was demonstrated as one part of a final project completed with 3, 4 and 5 year old children in a child care center. At least 40% of each class have elected to use the uke in more than one teaching project, indicating a level of confidence and enjoyment that is encouraging at this introductory, basic level of instruction.

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REGIONAL INSTRUCTIONAL WORKSHOPS

THE BRAIN, CREATIVITY, COMPUTERS: A WORKSHOP FOR PSYCHOLOGY FACULTY IN THE VCCS

Gus Kierwa and Pryor Hale, PVCC
Kathleen Corrigan Fuhs, JSRCC
Tom Bond, TNCC
Nancy J. Bedford, GCC

ABSTRACT

Over the past six years, some members of the Psychology Faculty in the Virginia Community Colleges have been meeting in an attempt to share ideas and resources to improve instruction, to create a network of professionals, and to meet some professional development needs of people working in isolation (many of the smaller community colleges have only one or two full time faculty in psychology) with limited budgets.

One of the areas that this workshop particularly tried to address is that of professional development for the "generalist." Finding professional development that provides enough depth in a subject area without trying to create a "specialist" in that area is often difficult. While the speakers reflect this goal, it was also as important for us to get together, to exchange ideas about what was working in our classrooms and to discover what the interests of the group were for future workshops. The enthusiasm of the group was high.

The first speaker was Dr. Eric Zilmer, a neuropsychologist from the University of Virginia Medical School. He gave an introduction to the field of neuropsychology, spoke of neuropathology, described and demonstrated some of the assessment procedures that are used in the clinical setting to determine brain dysfunction and injury and shared some of the current research areas in neuropsychology.

The next two sessions were very informal. The group discussed what they would like to see happen at future meetings. Agenda items, how the workshops should be handled, dates, sites, etc. were explored. This was in many ways the most interesting and challenging part of the day because it was the most interactive. Several plans and, more important, a commitment to continue meeting together were discussed. We also decided that we needed time as a group to communicate more directly with each other and mechanisms were discussed to facilitate that.

The session on computers allowed faculty to get some "hands on" practice with software from several different companies. We talked about how this could be incorporated into psychology classes. Discussions were held in small groups on such topics as including computer simulations, their benefit to the student, and how to deal with starting to use computers in a setting that was strained to the limit already (too many students trying to use too few computers). For some faculty the issue was how to get familiar enough with computers. Obviously the issue here was not to come to some common agreement but to provide a setting where we could begin to grapple with the issues.

Our last session was led by Dr. Rob Gushurst, a clinical psychologist, formerly a faculty member at Mary Washington College and now in private practice. He focused on how both patterns of behavior that are established in our youth and the shared belief systems of our culture limit us in being as creative as we could be. Dr. Gushurst led the group in a series of exercises that probed belief patterns.

The workshop evaluations were excellent, and we accomplished many of our original goals: to bring psychology faculty together, to discuss new ideas, to incease our networking on a professional and personal level, and to determine our own professional development needs and way to meet them, to be better teachers.

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VIRGINIA CONFERENCE ON ONLINE SEARCHING IN COMMUNITY COLLEGES

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Co-Sponsor: Peggy Cocke
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ABSTRACT

The purpose of this conference was to help Virginia community colleges explore the possibilities of using computer technology to improve access to information for both faculty and students. Excellence in teaching and learning cannot be achieved without adequate access to information; through online searching teachers and students can more efficiently obtain all of the information they need to teach and learn successfully.

Prior to the conference all VCCS libraries were surveyed as to whether they presently offered online search services, whether they would be interested in attending the conference, and what topics they wanted discussed. Of the sixteen colleges replying, six presently offer online searching and four plan to do so in the near future. Topics such as justifying online service and how to pay for it were mentioned.

On March 25, 1986 over seventy librarians and other faculty and staff assembled for a very full day of speeches, short talks, lunch, a panel discussion, online search demonstrations, and an opportunity to fill a bag with online search information handouts. Eleven community colleges were represented at the conference. An optional pre-conference session of individualized search experiences was held the evening before the conference.

The conference began with an inspiring keynote address by Anne Caputo of DIALOG Information Services. Another speaker from outside the VCCS was Christina Brundage from George Mason University. However, most of the speakers were from Northern Virginia Community College and other VCCS colleges. One of the key speakers was Lillian Berg of the NVCC Annandale Campus Chemistry Department who had involved her students in "hands on" use of online searching before any of the NVCC libraries had instituted online services. Paul Parker of NVCC Computing and Information Systems was present to answer technical questions and also made a small-group presentation about microcomputers and modems.

The remainder of the program was conducted by Learning Resource Center directors and librarians from various Virginia community colleges. Short talks were given on various aspects and problems of beginning online search services, a panel discussion provided insight into methods of payment, and a short course on online searching was provided for attendees who needed background information or a refresher course on the basics of online searching. Demonstrations of five search services, DIALOG, BRS/After Dark, Knowledge Index, Wilsonline, and Wilsearch, were conducted by NVCC librarians.

Results of the evaluation questionnaire showed that conference attendees particularly appreciated the opportunity to meet other community college librarians and share problems, experiences, and solutions. All parts of the program were rated favorably. Follow up meetings on particular aspects of online searching were suggested during the conference and in response to the questionnaire.

A seventy-two page report of the conference was printed and distributed to all VCCS college libraries and to other interested individuals. Copies were also sent to ERIC (Educational Resources Information Center) so that it would be available via reproduction to the entire educational community.

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REGIONAL MATHEMATICS CONFERENCE

Martha T. Clutter
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ABSTRACT

A Regional Mathematics Conference was held at Piedmont Virginia Community College on April 26, 1986. Forty-one mathematics faculty representing thirteen community colleges and the University of Virginia attended. Even though the Conference was originally planned for community colleges in this region (Blue Ridge, Germanna, Piedmont, Lord Fairfax, and Northern Virginia), all community colleges in Virginia received an invitation. Eight of the nine colleges in the region attended, plus five colleges from outside the region (Mountain Empire, Rappahannock, John Tyler, Tidewater, and Virginia Western).

Four sessions were offered on a variety of topics relating to the Conference theme "Successful Strategies for Teaching Mathematics in the Community College." The first session focused on "Computers in the Mathematics Classroom" and was presented by Dr. James R. Perkins and Mr. Thomas Lough of PVCC. The session featured applications using the LOGO language. In the second session, Mr. David Scango of NVCC, Manassas, described a Technical Math Course for Welders that he designed as an alternative for Math 118-9. The Luncheon Speaker was Dr. Douglas R. Costa, Associate Professor of Mathematics at the University of Virginia. Dr. Costa's talk centered around tidbits from the history of mathematics and ways these topics can be incorporated into our classroom teaching. He even gave us a pop quiz! The third session was led by Dr. William C. Lowry, Professor of Mathematics Education at the University of Virginia. Dr. Lowry discussed a variety of heuristics and strategies for problem solving; several examples of problems were given which demonstrated the thinking skills involved. The final session, led by Ms. Martha Clutter of PVCC, focused on proposed changes, issues, and recommendations relating to the future of teaching mathematics. Some of these issues include changes in high school mathematics curricula and graduation requirements, discrete mathematics versus calculus, the most efficient and productive uses of calculators and computers in the mathematics classroom, and the implications of these issues for mathematics faculty in the community college.

Conference evaluations were very positive and indicated a desire to continue such a conference in future years. One favorable outcome of the conference in future years. One favorable outcome of the conference was the emphasis of the need for an organization to focus on the specific needs of community college mathematics faculty. Several avenues for accomplishing this goal were discussed and will be pursued. A second outcome was the publishing and distributing of a booklet containing full-time faculty, mathematics courses offered, textbooks used, and sample course outlines from many of the community colleges participating in the Conference.

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COMPUTER ASSISTED INSTRUCTION IN THE HEALTH SCIENCES

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ABSTRACT

This workshop was held on March 27, 1986 from 10:00 a.m.-2:30 p.m. There were 50 faculty in attendance. Schools represented were Northern Virginia Community College, J. Sargent Reynolds, Southside Virginia Community College and Germanna College. The speakers were: Dr. Charles White, Ms. Lois Anderson, and Mrs. Marcia Kruse.

Dr. Charles White, Assistant Professor of Computer Education and Director of the Center for Interactive Educational Technology at George Mason University, discussed some of the applications of computer software. These included:

Drill and Practice

As its name implies, a drill and practice program provides the student with a series of questions to be answered or problems to be solved. Typically, drill and practice programs reinforce basic skills.

Tutorial

This approach to computer-assisted learning aims to teach concepts to the students. In general, the tutorial approach assumes little or no knowledge of the subject. Tutorial programs are especially useful for remediation and enrichment.

Simulation

Computer simulations model real-life or fantastic situations which otherwise might be impossible or impractical to bring to the classroom. Simulations may involve personal role playing, manipulation of a physical, chemical, or biological system.

Computer Problem Solving

These programs are most commonly applicable to science, business and mathematics. Computer Problem Solving programs allow students to explore such topics as the relationship between interest rates and loan period in business classes.

Data Analysis

The students use computerized analysis to manipulate and perform tests on data allowing them to see relationships between items in a data collection.

Information Retrieval

The student can select and retrieve from the computer certain items/information in a data collection.

Materials Generation

These programs typically generate multiple versions of a test or worksheet, puzzles, etc.

Computer as an Object of Instruction

This area includes word processing, accounting and payroll which are real-life business applications.

Dr. White showed the participants examples of software that could be used in the classroom. Included were examples of a Chemistry simulation and a demographic study. A glossary of computer terms was given to all participants.

Lois Anderson, supervisor of the Learning Lab at the Annandale Campus of Northern Virginia Community College, spoke on Student Usage Problems with Computer Assisted Instruction. She indicated that problems students experience with the computer can be categorized three ways: hardware, software, and human. A properly structured orientation for students using computers can allay the fears some students have of micros and can result in positive attitudes toward this technology. She emphasized that an orientation should include but is not limited to:

> a general discussion of each computer component and how these parts work together as a unit;
>
> illustration of particular applications to vocational field;
>
> discussion of proper handling of hardware and software; and
>
> discussion of rules and regulations of the facility.

Ms. Anderson used several research studies to highlight various aspects of her discussion.

Mrs. Marcia Kruse, R.N., Director of Nursing Education at Medi-Sim, Computer Assisted Instruction, Inc. of Edwardsville, Kansas discussed the development of a software package. Mrs. Kruse briefly outlined the types of Computer Assisted Instruction and then discussed various applications such as 1. Training and Staff Development

2. Evaluating Clinical Competency
3. Demonstrating Document Performance
4. Providing diversity of experience

Mrs. Kruse outlined the development of a Computer Instructional Package. Phase I would consist of defining learning objectives and content categories for the target audience. It would also include curriculum implementation. Phase II would include outlining content, and developing individual sections utilyzing tutorials or simulations etc. Phase III would consist of evaluations and then editing and revising of the package. Mrs. Kruse provided the participants with a list of resources.

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INDUSTRIAL AUTOMATION EDUCATION: TOOLS FOR THE 1980s

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ABSTRACT

Industrial automation techniques are fast becoming the norm for companies involved in large scale manufacturing. Community and technical colleges have a responsibility to stay current with this technology and train their students to be productive and effective workers in this environment. In cooperation with General Electric Company in Charlottesville, Virginia, the Northern Virginia Community College and Piedmont Virginia Community College assembled a workshop for persons involved in teaching industrial electronics courses, planning industrial automation curricula content, or administering technically oriented programs at the two year college level.

The objectives of the workshop were as follows:

- To provide two year colleges a forum to discuss industrial electronics and factory automation curriculum requirements with industry representatives
- To determine the possibilities for cooperative alliances between colleges and industry to better educate tomorrow's work force
- To share success stories of close cooperation between community colleges and businesses
- To provide participants with an update on industrial electronics technologies including programmable control, robotics, numerical control and drives.

The objectives were all achieved as those attending participated in discussions with representatives from Williamsport Community College in PA., Chattanooga State Technical and Community College in TN., and both General Motors Corporation and General Electric Company. Fresh thoughts for new curriculum directions were derived from informative presentations such as that delivered by Mr. Charles T. Edgar, Manager, Production Machinery Sales Development, General Electric who addressed the issue of "The Automation Initiative". Other topics such as "Reindustrialization through Industrial Electronics", "Partnerships in Industrial Automation Education", "Robot and Vision Systems", CAD/CAM, and a comprehensive tour of the automated General Electric facility added to the progressive ideas provided by the workshop.

Hopefully this workshop will be the start of many attempts to bring VCCS faculty and colleagues together to discuss new and different innovations in the field of automation technology.

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CROSS DISCIPLINARY LITERACY WORKSHOP

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ABSTRACT

This second annual workshop was coordinated by four community colleges: TCC, Virginia Beach Campus; Paul D. Camp; Southside, Alberta Campus; and Thomas Nelson. The colleges invited faculty members from their own institutions, other regional colleges, and local secondary schools to explore the concept of writing as learning across the curriculum. Based on recent studies in the field of cognitive development, which recognizes the inherent instructional value of writing as an activity that increases critical thinking, this program presented general information about the importance of written work as well as specific information about using writing in the classroom.

The structure of the workshop was as follows:

(1) A keynote speaker – Dr. Lillian Brannon of New York University – spoke about the uses of writing as learning across the grade levels and disciplines, emphasizing three goals for writing assignments: fluency, clarity, and correctness.

(2) Local business and industry representatives explained the need for skilled writers as communicators of vital information at all levels of the business world.

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INTERNATIONAL/INTERCULTURAL PROGRAMS: EXPANDING OPPORTUNITIES IN A PLURALISTIC SOCIETY

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ABSTRACT

Recognition of internationalism and institutional responsibilities in a global information society led to the proposal for a regional workshop designed for planning purposes. The Workshop was cosponsored by Piedmont Community College, Tidewater Community College and Patrick Henry Community College, and held on April 28-29 at the Alexandria Campus of Northern Virginia Community College. Over 125 attendees represented the five campuses of NVCC and eleven colleges of the VCCS.

Objectives of the planning workshop were (1) to establish a communication network among VCCS faculty, staff, and administrators interested in international and intercultural programs, (2) to identify, organize, and present information currently available on these issues, and (3) to explore the advantages to students and faculty of the development of such programs at community colleges in the VCCS.

Among the featured speakers were Clyde Sakamoto of AACJC, Lynda Icochea, Director of the Center for International Studies at Bergen Community College, and Dr. Johnas Hockaday, Chancellor of the VCCS. Sessions on federal funding were led by agency representatives from the Department of Education, the United States Information Agency, and the National Endowment for the Humanities. A representative from the Peace Corps spoke of opportunities in that area. Faculty from the VCCS colleges participated in sessions on meeting the needs of the international student, internationalizing the curriculum, foreign languages study and teaching, and faculty exchange.

The extent of VCCS involvement in international and intercultural experiences, as individuals and as institutions, is significant. A number of recipients of Fulbright awards and former Peace Corps volunteers were identified among those attending. Exemplary programs at VCCS Colleges - New River, Virginia Western, and J. Sargeant Reynolds - were described by Dr. Hockaday. In his talk he emphasized the influence of U.S. economic involvement abroad on stateside markets, noting that education is a commodity for export.

Areas of focus for increased participation in world understanding were identified as (1) international and intercultural exchange of faculty and student, (2) encouragement of enrollment of international students, (3) internationalizing the curriculum, and (4) exporting technical education and on-site training for employees of multinational businesses.

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ERIC CLEARINGHOUSE
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